

2.7 Connecting X-Intercepts and Factors

Recall:

- The **x-intercepts** are where the graph crosses the x-axis.
- They are also called **zeros, roots or solutions**.
- They are the points where the **y=0**.

Factored form is the easiest form to find the solutions

Ex: Is -3 an x-intercept (**zero**) of the Function
 $f(x) = 2x^2 + 5x - 3$?

Hint



That makes _____ a factor of $2x^2 + 5x - 3$

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Factored Form: $y = a(x - r)(x - s)$

the zeros/x-intercepts/roots/solutions are **r** and **s**

To find the zeros set $f(x) = 0$

then we can find the zeros by setting each factor = 0 and solving

Ex.1 Find the zeros.

a) $f(x) = (x - 4)(x + 3)$

b) $y = -2(x + 5)(x - 5)$

c) $y = -4(x + 1)^2$

d) $f(x) = 3x(x - 2)$

e) $f(x) = (2x - 1)(3x + 4)$

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Ex. 2 Solve by factoring.

1. Set = 0
2. Factor
3. State solutions

Recall

a) $y = x^2 + 6x + 8$

b) $y = -x^2 - 2x + 15$

c) $y = 3x^2 + 12x + 12$

d) $y = 2x^2 - 18$

e) $y = 3x^2 + 6x$

f) $y = 1.4x^2 - 9.8x + 16.8$

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Ex 3 Solve

$$x^2 - 144 = 0$$

Method 1

Method 2

Ex 4 Solve

$$x^2 + 3x + 10 = 3x^2 - 4x - 5$$

Ex 5 Solve

$$3x(x - 2) = 4x(x + 1)$$

Ex 6 Solve

$$(x + 3)(x - 1) = 2(x - 5)(x + 3)$$

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How can you tell if the equation is factored or not???

Factored Just state sol'n's
from factored form

Not Factored

more work must
expand, simplify
rearrange then
factor and state
soln's .
OR
if in vertex form
set = 0 then
isolate x

$$3x(x-2) = 4x(x+1)$$

$$f(x) = -7(x-2)^2$$

$$y = -2(x+5)(x-5)$$

$$f(x) = -2(x-8)^2 + 32$$

$$f(x) = 3x(x-2)$$

Mar 1-11:30 AM

Practice

p 161 # 1, 3ab, 4cf, 5aef,
6def, 7 ef

the
zeros

with x
flesh eaters

sunday
february 26 1978
9 pm

at the troubador
9081 santa monica boulevard
west hollywood, ca

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